

**Memorandum**

December 1, 2006

TO: Kevin Rochlin and Sally Thomas, EPA

FROM: John Roland, Ecology

SUBJECT: Draft Review October 25, 2006 – EPA Phase 1 Fish Tissue Sampling Data Evaluation, Upper Columbia River Site CERCLA RI/FS

Please accept the following comments on the draft fish tissue report. We are attempting to generally focus more on supplementing comments already submitted.

**General Requests and Comments**

It appears that overall focus has been put on largescale suckers and this is seen within the written sections and also in the figures and tables. Although this provides useful information it limits the ability to form a comprehensive Conceptual Site Model. The project will benefit in the revisions by providing additional information within the document for the other target species. This is particularly true for ~~Figures 3-66 through 78~~. Similar comparisons would be useful for the other target species.

The Fish Sample Collection Area of ~~fa~~ is often cited throughout the report. Consider clarifying where in particular this FSCA is located and also how it differs in relation to FSCA-1. A better description of the other FSCAs in relation to the sediment sampling focus areas is requested. These descriptions would also assist in the comparison between tissue and sediment concentrations. Also, why were FSCAs grouped into reaches? Great variability can exist between FSCAs that are grouped into a single reach. Doing so potentially loses the ability to make more location-specific evaluations.

There is no application of lipid content to the discussion or interpretation of the results, particularly the organic contaminants. Lipid normalization graphics for organic contaminants in tissue, even in an appendix, is requested. This type of analysis, for example, may further benefit interpreting the relatively high PCB levels found in walleye, which generally are lower in fat.

A presentation of the data associated with fish size and also fish age is warranted. The data was collected and would be useful to provide the data in a statistically evaluated tabular form and also within a figure.

The report will benefit by the addition of a discussion providing population estimates for the target species. For example, this will help indicate the representativeness of sample sizes within certain FSCAs and across the study area relative to the general populations.

The following ~~additional charts~~, as an appendix, also are requested in the final: Charts showing ~~fillet results vs sediment concentrations similar to figures 3-66 to -74.~~

## Specifics

### Section 3 – Data Evaluation

~~3-1-1~~ Screening Process – For the Ecological Criteria discussion on page 3-2 [and used in table 3-1] please add discussion that briefly summarizes and explains for the general reader the ~~bases for the screening values~~ so as to provide context to the references (Dyer, Windward) and associated screening values.

~~3-2-2~~ Estimated Whole Body Results from Fillet and Offal Analysis – The ~~accuracy, reliability, and application of this method~~ is questioned.

~~3-2-2~~ Results of Largescale Sucker Gut/Gut Contents Analysis:

Section 3.2.3.1 Methods - The sentence that reads, “The results of the gutless whole body, gut/gut contents analysis and percent AFDW can be used to assess the potential contribution of slag to the analysis of whole body largescale sucker samples” ~~may be too far reaching in assuming that sediment found within the gut can be characterized as slag while only doing a visual inspection of the guts.~~ To fully assess the sediment contents associated with the gut a chemical analysis is required rather than just a visual inspection. This comment also applies to other parts of the report where similar conclusions are drawn.

Section ~~3-2-3-2~~ Results - The first whole sentence at the top of page 3-11. ~~Should the second “zinc” be a different contaminant?~~ The way it currently reads is that the relationship found with zinc is more pronounced than itself.

~~The first whole paragraph on page 3-11~~ - The sentences that read, “This (these) patterns suggest that there is a potential for sediment in the gut to bias any whole body lead measurements from the most upstream locations” and “The relationship between percent lead associated with the gut and percent AFDW of the gut/gut contents is poor, suggesting little influence of sediment on the lead measurements in the gut/gut contents samples and a low potential bias of lead whole body measurements” are confusing and possibly conflict each other and should be changed with a more appropriate statement.

3.3 Nature and Extent of Contaminants in Fish (CSM Update):

~~Sections 3-3-1~~ Evaluation of Trends by Species and Locations and ~~3-3-2~~ Statistical Comparisons - Discussion of trends that are potentially not statistically demonstrated with ones that may be can lead to confusion. Please consider this in the revisions. Both assessments have value, but they need to lead toward something. ~~If non-statistical trends are discussed they should be readily distinguishable.~~ Also, please add discussion as to why the P value of 0.1 was selected to determine significance? As a side note: ~~is it possible that the greater than sign (>) in many spots throughout Section 3-3-2 should actually be switched to less than signs to show significance.~~ ?

~~Section 3.3.1.1 Whole Body Tissue - The third sentence in the first full paragraph on page 3-13. To what ESCA in particular is the statement referring to?~~

~~Table 3-11. Hypothetical Fishes B and F look to be the same and can be combined with an expanded conclusion to address both conclusions proposed for Hypothetical Fishes B and F.~~

~~Figures 3-33 and 34 should have the same scale on the y-axis to make them more comparable.~~

~~Figures 3-66 through 78: The corresponding A Figures should be converted to mg/kg wet weight rather than the current  $\mu\text{g/kg}$  wet weight to make the figures more comparable to the corresponding B Figures.~~

#### ~~Section 4— Data Gaps and Recommendations~~

~~This section could be stronger. A few examples are:~~

- ~~• Walleye and PCBs – There is a need for further exploring the nature of the condition, especially in the lower reservoir. The movement of fish in the system and the sources and mechanisms of contamination found is important to achieving improvements.~~
- ~~• Burbot – The elevated arsenic and some other contaminants is an important topic.~~
- ~~• Burbot – Fillets should be considered in the future.~~
- ~~• For future sampling events, a chemical analysis of the sediment found in the guts of the fish should be considered to evaluate the contribution of slag.~~

~~Thank you for accepting and considering these comments. I'm available to meet and discuss these or other items at your convenience.~~